List of Contents

NUMBER 1

C. C. Liu and **R. L. Dougherty**	1	Development of radiative transfer equations for the scattering of polarized light in a plane-parallel medium
P. Joubert, J. Bonamy and **D. Robert**	19	Exact trajectory in semiclassical line broadening and line shifting calculation test for H_2–He $Q(1)$ line
K. M. Firsov, M. Yu. Kataev, A. A. Mitsel, I. V. Ptashnik and **V. V. Zuev**	25	The computer code sagdam for simulating the laser sounding of atmospheric gases
C. F. Segatto, M. T. Vilhena and **J. D. Brancher**	39	The one-dimensional LTS_N formulation for high degree of anisotropy
José Manuel Pereira Serrão	45	Absorption spectrum of sodium
Vladimir V. Berdnik and **Valery A. Loiko**	49	Modelling of radiative transfer in disperse layers of a medium with a highly stretched phase function
Rodoljub Simović and **Jovan Vukanić**	59	Analytic approximations of the H-function based on different DPN procedures
A. P. Nefedov, V. A. Sinel'shchikov and **A. D. Usachev**	73	Reduced absorption coefficient in wings of the Na-D doublet broadened by O_2, N_2, CO_2 and H_2O molecules
David P. Kratz and **Fred G. Rose**	83	Accounting for molecular absorption within the spectral range of the CERES window channel
M. De Rosa, C. Corsi, M. Gabrysch and **F. D'Amato**	97	Collisional broadening and shift of lines in the $2\nu_1 + 2\nu_2 + \nu_3$ band of CO_2
F. M. Schulz, K. Stamnes and **F. Weng**	105	VDISORT: an improved and generalized discrete ordinate method for polarized (vector) radiative transfer
Note		
Z. X. Teng, C. Y. Chen, S. X. Yan, Y. S. Wang, F. J. Yang and **Y. S. Sun**	123	Rate coefficients of electron impact ionization for highly ionized ions

NUMBER 2

Sønnik Clausen and **Jimmy Bak**	131	FTIR transmission–emission spectroscopy of gases at high temperatures: experimental set-up and analytical procedures

Chen Hongshan, Dong Chenzhong and **Zou Xiaoxin**	143	Strong local configuration interactions and their influence on the level structure and transitions of $2s2p^6 3l$ configurations in AlIV–MnXVI
R. Rodrigues, K. W. Jucks, N. Lacome, Gh. Blanquet, J. Walrand, W. A. Traub, B. Khalil, R. Le Doucen, A. Valentin, C. Camy-Peyret, L. Bonamy and **J.-M. Hartmann**	153	Model, software, and database for computation of line-mixing effects in infrared Q branches of atmospheric CO_2—I. Symmetric isotopomers
C. Ventura and **M. Papini**	185	Analysis of the reflectance of granular materials in the near-infrared wavelength range
F. Simonet, M. Aubes, H. Elloumi and **H. Sarroukh**	197	Optimization of the spectral flux computation for cylindrical discharges
A. Poquérusse and **S. Alexiou**	209	Improved closed-form formulas for the collision operator for isolated ion lines in the standard Stark-broadening theory
J. Musielok, W. L. Wiese, S. Glenzer and **H.-J. Kunze**	215	A spectroscopic coupling study for some carbon-like species
Toshiaki Yokota and **Seiichi Manabe**	219	Generation of Coulomb lattice in the fine particle plasmas and density distribution measurement
K. R. Karim, B. Vancleave and **C. P. Bhalla**	227	Calculation of atomic parameters for K_α satellite spectra of hollow argon atoms
Brett C. Bush, Shelly K. Pope, Anthony Bucholtz, Francisco P. J. Valero and **Anthony Strawa**	237	Surface radiation measurements during the ARESE campaign
Brett C. Bush and **Francisco P. J. Valero**	249	Comparison of ARESE clear sky surface radiation measurements
C. Y. Robert Wu, F. Z. Chen and **D. L. Judge**	265	Temperature-dependent photoabsorption cross sections of OCS in the 2000–2600 Å region

NUMBER 3

C. Leroux, J. Lenoble, G. Brogniez, J. W. Hovenier and **J. F. De Haan**	273	A model for the bidirectional polarized reflectance of snow
E. M. Abulwafa	287	Galerkin technique for radiative transfer in a plane-parallel medium
M. Cattani and **J. M. F. Bassalo**	299	On the stability of optical activity: a two-level approach
Rubem M. F. Vargas and **Marco Tullio M. B. De Vilhena**	303	A closed-form solution for the one-dimensional radiative conductive problem by the decomposition and LTS_N methods

G. Bertuccelli, H. O. Di Rocco, D. I. Iriarte, M. Romeo y Bidegain and H. F. Ranea-Sandoval	309	Radiative mechanisms in laser-produced plasmas in Xe
M. Gallardo, M. Raineri, J. G. Reyna Almandos, H. Sobral and F. Callegari	319	Revised and extended analysis in four times ionized xenon Xe V
M. Ç. Güleçyüz, A. Kaşkaş and C. Tezcan	329	Slab albedo problem for anisotropic scattering using singular eigenfunction solution of the C_N equations
J. Lu, C. J. Dai, C. Q. Li, X. H. Xu, Z. D. Liu and J. C. Tang	339	Study of the even-parity $J = 0$ spectrum of neutral barium
Arthur G. Nikoghossian	345	The variational formalism and bilinear relations of the radiative transfer theory
B. Blagojević, M. V. Popović, N. Konjević and M. S. Dimitrijević	361	Stark broadening parameters of analogous spectral lines along the lithium and beryllium isoelectronic sequences
Deborah A. Levin	377	General model for the spectral calculation of OH radiation in the ultraviolet
T. Z. Muldashev, A. I. Lyapustin and U. M. Sultangazin	393	Spherical harmonics method in the problem of radiative transfer in the atmosphere-surface system
P. Van der Westhuizen, K. Visser and D. C. Beukman	405	Radiative lifetimes of some energy levels in Ne II

NUMBER 4

J. Liu and Y. S. Chen	417	Examination of conventional and even-parity formulations of discrete ordinates method in a body-fitted coorinate system
J. L. Dufresne, R. Fournier and J. Y. Grandpeix	433	Inverse gaussian k-distributions
J.-W. Wu and H.-S. Chu	443	Combined conduction and radiation heat transfer in plane-parallel packed beds with variable porosity
P. I. Porshnev, J.-P. Martin and M.-Y. Perrin	453	Extraction of vibrational distribution functions and rotational temperatures from the IR spectra emitted by a non-isothermal medium
B. Yaakobi and F. J. Marshall	465	Imaging the cold, compressed shell in laser implosions using the K_α fluorescence of a titanium dopant
J. Bishop	473	Transport of resonant atomic hydrogen emissions in the thermosphere and geocorona: model description and applications
S. Kato, T. P. Ackerman, E. G. Dutton, N. Laulainen and N. Larson	493	A comparison of modeled and measured surface shortwave irradiance for a molecular atmosphere

M. H. Elghazaly, A. M. A. Elbaky, A. H. Bassyouni and H. Tuczek 503 Spectroscopic studies of plasma temperature in a low-pressure hydrogen plasma

J. P. Burrows, A. Richter, A. Dehn, B. Deters, S. Himmelmann, S. Voigt and J. Orphal 509 Atmospheric remote-sensing reference data from GOME — 2. Temperature-dependent absorption cross sections of O_3 in the 231–794 nm range

P. Joubert, J. Bonamy, D. Robert, J.-L. Domenech and D. Bermejo 519 A partially correlated strong collision model for velocity- and state-changing collisions application to Ar-broadened HF rovibrational line shape

T. Wujec, A. Bacławski, A. Golly and I. Książek 533 Transition probabilities for Br I lines emitted from a wall-stabilized cascade arc

A. I. Lyapustin and T. Z. Muldashev 545 Method of spherical harmonics in the radiative transfer problem with non-Lambertian surface

Note

W. A. Van Wijngaarden and J. Xia 557 Lifetimes and polarizabilities of low lying S, P and D states of francium

Erratum 563

NUMBER 5

B. Hapke 565 Scattering and diffraction of light by particles in planetary regoliths

E. M. Abulwafa 583 Conductive-radiative heat transfer in an inhomogeneous plane-parallel medium using galerkin-iterative method

T. Kelz, A. Schumacher, M. Nägele, B. Sumpf and H.-D. Kronfeldt 591 Detection of CO in air using diode laser pumped difference-frequency generation in a modular setup

P. Palmeri and J.-F. Wyart 603 Interpretation of energy levels and predicted transition probabilities in neutral technetium (Tc I)

D. S. Balsara 617 An analysis of the hyperbolic nature of the equations of radiation hydrodynamics

D. S. Balsara 629 Linearized formulation of the Riemann problem for radiation hydrodynamics

D. S. Balsara 637 The eigenstructure of the equations of radiation magnetohydrodynamics

J. J. Honrubia, R. Dezulian, D. Batani, M. Koenig, A. Benuzzi, J. Krishnan, B. Faral, T. Hall and S. Ellwi 647 Preheating effects in Laser-driven shock waves

K. R. Karim and L. Logan 659 Theoretical lifetimes, transition rates, X-ray wavelengths, and fluorescence yields of hollow neon atoms with double K-shell vacancies

R. V. Orloski, A. G. Trigueiros and G. H. Cavalcanti 665 Weighted oscillator strengths and lifetimes for the Si IX spectrum

J. J. Macfarlane, P. Wang, J. E. Bailey and T. A. Mehlhorn 671 Diagnosing plasma conditions in targets irradiated by intense light ion beams using K_α satellite line intensity ratios

J. Bak and S. Clausen 687 FTIR transmission-emission spectrometry of gases at high temperatures: demonstration of Kirchhoff's law for a gas in an enclosure

R. J. Kshirsagar, L. P. Giver, C. Chackerian Jr. and L. R. Brown 695 The rovibrational intensities of the $2\nu_3$ band of $^{12}C^{16}O^{18}O$ at 4639 cm^{-1}

J. Jonkers and J. A. M. Van Der Mullen 703 The excitation temperature in (helium) plasmas

Note

R. R. Reddy, Y. N. Ahammed, K. R. Gopal and S. Anjaneyulu 711 Bond dissociation energy of astrophysically important molecules

Brief Communication

K. Park, L. R. Zink, K. V. Chance, K. M. Evenson and I. G. Nolt 715 Pressure broadening of the 118.455 cm^{-1} rotational lines of OH by N_2, O_2, H_2, and He

NUMBER 6

A. Skudra and G. Revalde 717 Mathematical modelling of the spectral line profiles in the high-frequency discharge

M. H. El Ghazaly, A. M. Abd El Baky, A. F. Mansour and A. H. Bassyouni 729 Dependence of the collision width and shift on the impact parameter

J. Domysławska, A. Bielski and R. S. Trawiński 735 Collision-time asymmetry of the ^{114}Cd 326.1 nm line perturbed by krypton

A. A. Vigasin 743 On the modelling of absorption in the ν_3 band far wing of CO_2 perturbed by argon

A. R. Degheidy and M. S. Abdel Krim 751 Effects of Fresnel and diffused reflectivities on light transport in a half-space medium

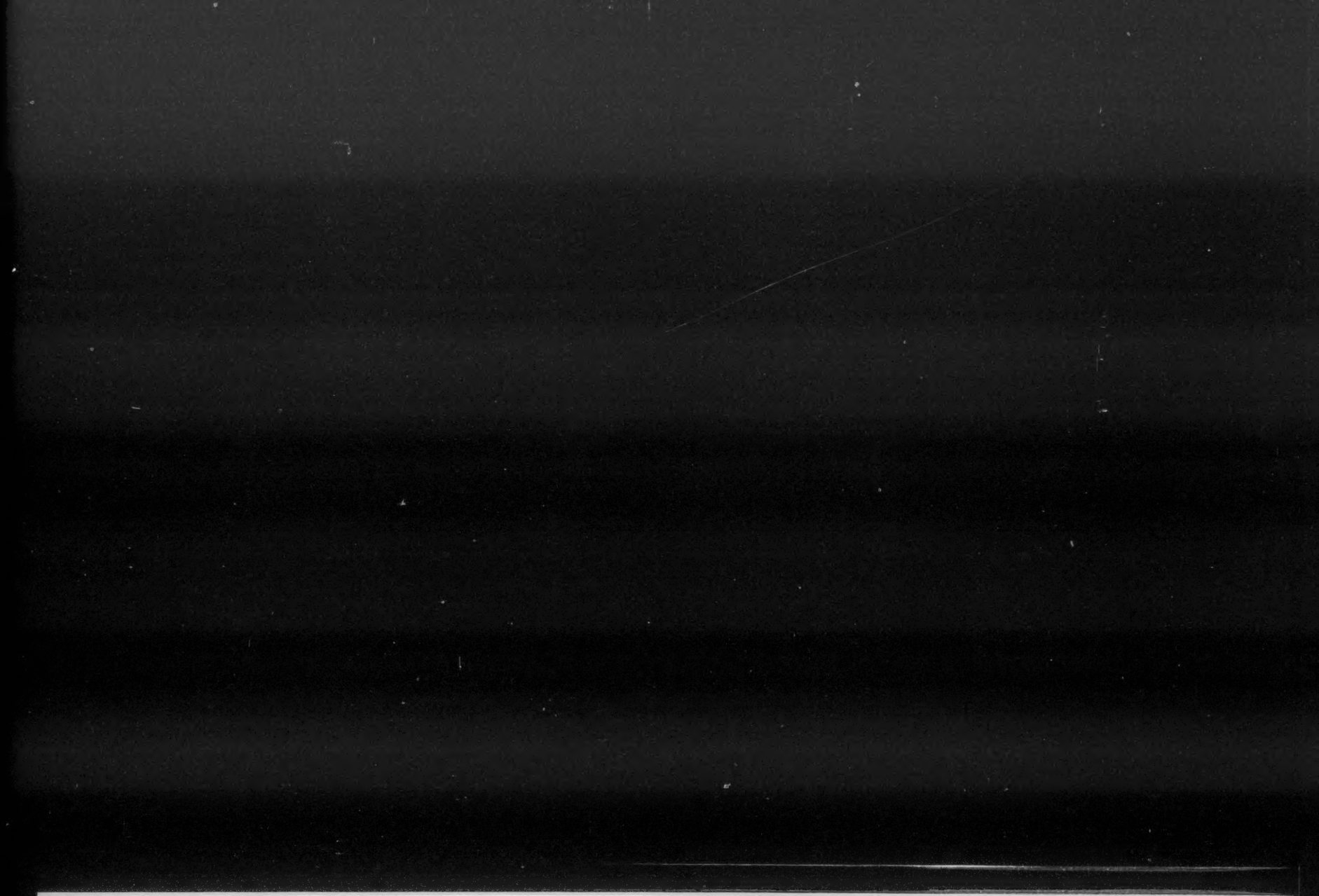
M.-Y. Allout, V. Dana, J.-Y. Mandin, P. Von Der Heyden, D. Décatoire and J.-J. Plateaux 759 Oxygen-broadening coefficients of first overtone nitric oxide lines

V. P. Tishkovets, Yu. G. Shkuratov and P. V. Litvinov 767 Comparison of collective effects at scattering by randomly oriented clusters of spherical particles

C. D. Ball, J. M. Dutta, M. M. Beaky, T. M. Goyette and F. C. De Lucia 775 Variable-temperature pressure broadening of H_2S by O_2 and N_2

R. Schermaul and **R. C. M. Learner** 781 Precise line parameters and transition probability of the atmospheric *A* band of molecular oxygen $^{16}O_2$

C. Camy-Peyret, J.-M. Flaud, J.-Y. Mandin, A. Bykov, O. Naumenko, L. Sinitsa and **B. Voronin** 795 Fourier-transform absorption spectrum of the $H_2{}^{17}O$ molecule in the 9711–11 335 cm^{-1} spectral region: the first decade of resonating states

B. G. Wilson and **M. H. Chen** 813 A revised algorithm for the computation of super-transition array spectra of hot dense plasmas

D. D. Markusev, J. Jovanovic-Kurepa, J. Slivka and **M. Terzic** 825 Vibrational to translational relaxation in SF_6–Ar mixtures: quantitative analysis